SEQUENCE LISTING

SEQ ID NO: 1

LENGTH: 1447

TYPE: nucleic acid

STRANDEDNESS: single

TOPOLOGY: linear

MOLECULE TYPE: DNA

SEQUENCE DESCRIPTION:

GAATTCCGCG AACGAATAAT TATTATTAGC AATTATTAGC GATCAATAAT CTTGATCACA TT 62

ATG GCA AGC ACT ATT AAG GAA GCA TTA TCA GTG GTG AGT GAA GAC CAG 110

TCC TTG TTT GAG TGT GCC TAC GGA TCG CCC CAC CTT GCA AAG ACA GAA 158

ATG ACA GCC TCC TCT TCC AGT GAA TAT GGG CAA ACA TCA AAG ATG AGC 206

CCG CGC GTT CCC CAG CAG GAC TGG TTA TCA CAG CCC CCG GCC AGA GTT 254

ACC ATT AAG ATG GAG TGT AAC CCA AAC CAG GTT AAT GGG TCA AGG AAT 302

TCA CCT GAT GAC TGC AGC GTG GCA AAA GGA GGG AAA ATG GTT AGC AGT 350

TCA GAC AAT GTT GGG ATG AAC TAT GGA AGC TAC ATG GAA GAG AAG CAT 398

ATT CCG CCT CCA AAT ATG ACA ACC AAT GAA CGA AGA GTT ATT GTG CCA 446

GCA GAT CCT ACG TTA TGG AGC ACA GAC CAT GTA CGG CAG TGG CTG GAG 494

TGG GCA GTG AAG GAG TAT GGT CTT CCA GAC GTG GAC ATC TTG TTG TTC 542

CAG AAC ATT GAT GGG AAA GAG TTG TGT AAA ATG ACC AAA GAT GAC TTC 590

CAG AGA CTC ACG CCG AGC TAT AAC GCA GAT ATC CTC CTG TCA CAC CTA 638

CAC TAC CTC AGA GAG AGA GGA GCC ACT TTT ATT TTT CCA AAT ACA TCA 686

GTT TAC CCA GAA GCA ACG CAA AGA ATA ACA ACA AGG CCA GAT TTA CCT 734

TAT GAG CAA GCG AGG AGA TCA GCG TGG ACG AGT CAC AGC CAT CCC ACT 782

CAG TCA AAA GCT ACC CAA CCA TCA TCT TCA ACA GTG CCC AAA ACA GAA 830

GAC CAG CGT CCT CAG TTA GAT CCT TAT CAG ATT CTT GGA CCG ACC AGC 878

AGC CGT CTT GCA AAT CCA GGG AGT GGG CAG ATA CAG CTA TGG CAG TTC 926

CTA CTG GAG CTT CTG TCG GAC AGC TCC AAC TCC AAC TGC ATC ACC TGG 974

GAG GGC ACA AAT GGG GAG TTC AAG ATG ACA GAC CCT GAT GAA GTG GCT 1022

CGG CGT TGG GGA GAG AGG AAA AGC AAA CCT AAC ATG AAC TAT GAC AAA 1070

CTC AGC CGT GCA CTT CGC TAC TAC TAT GAC AAA AAT ATT ATG ACT AAA 1118

GTT CAT GGT AAA CGC TAT GCC TAC AAA TTT GAT TTC CAC GGA ATC GCT 1166

CAG GCC CTC CAG CCT CAC CCT CCA GAA TCA TCC ATG TAC AAA TAC CCA 1214

TCA GAC CTC CCC TAC ATG AGT TCC TAC CAT GCA CAC CCC CAG AAG ATG 1262

AAC TTT GTA GCT CCC CAT CCC CCT GCT TTG CCC GTA ACC TCA TCC AGC 1310

TTT TTT GCT GCC CCT AAT CCA TAC TGG AAT TCA CCA ACT GGA GGC ATC 1358

TAC CCC AAT ACC AGG CTG CCA GCT GCT CAT ATG CCT TCC CAT CTT GGC 1406

ACC TAC TAC TAA GTG GGGAAAGAAA GAAAGCGCCA AGAAAA 1447

SEQ ID NO: 2

LENGTH: 451

TYPE: amino acid

TOPOLOGY: linear

MOLECULE TYPE: peptide

SEQUENCE DESCRIPTION:

Met Ala Ser Thr Ile Lys Glu Ala Leu Ser Val Val Ser Glu Asp Gln 16

Ser Leu Phe Glu Cys Ala Tyr Gly Ser Pro His Leu Ala Lys Thr Glu 32

Met Thr Ala Ser Ser Ser Ser Glu Tyr Gly Gln Thr Ser Lys Met Ser 48

Pro Arg Val Pro Gln Gln Asp Trp Leu Ser Gln Pro Pro Ala Arg Val 64

Thr Ile Lys Met Glu Cys Asn Pro Asn Gln Val Asn Gly Ser Arg Asn 80
Ser Pro Asp Asp Cys Ser Val Ala Lys Gly Gly Lys Met Val Ser Ser 96
Ser Asp Asn Val Gly Met Asn Tyr Gly Ser Tyr Met Glu Glu Lys His 112
Ile Pro Pro Pro Asn Met Thr Thr Asn Glu Arg Arg Val Ile Val Pro 128
Ala Asp Pro Thr Leu Trp Ser Thr Asp His Val Arg Gln Trp Leu Glu 144
Trp Ala Val Lys Glu Tyr Gly Leu Pro Asp Val Asp Ile Leu Leu Phe 160
Gln Asn Ile Asp Gly Lys Glu Leu Cys Lys Met Thr Lys Asp Asp Phe 176
Gln Arg Leu Thr Pro Ser Tyr Asn Ala Asp Ile Leu Leu Ser His Leu 192
His Tyr Leu Arg Glu Arg Gly Ala Thr Phe Ile Phe Pro Asn Thr Ser 208
Val Tyr Pro Glu Ala Thr Gln Arg Ile Thr Thr Arg Pro Asp Leu Pro 224
Tyr Glu Gln Ala Arg Arg Ser Ala Trp Thr Ser His Ser His Pro Thr 240
Gln Ser Lys Ala Thr Gln Pro Ser Ser Ser Thr Val Pro Lys Thr Glu 256
Asp Gln Arg Pro Gln Leu Asp Pro Tyr Gln Ile Leu Gly Pro Thr Ser 272
Ser Arg Leu Ala Asn Pro Gly Ser Gly Gln Ile Gln Leu Trp Gln Phe 288
Leu Leu Glu Leu Leu Ser Asp Ser Ser Asn Ser Asn Cys Ile Thr Trp 304
Glu Gly Thr Asn Gly Glu Phe Lys Met Thr Asp Pro Asp Glu Val Ala 320
Arg Arg Trp Gly Glu Arg Lys Ser Lys Pro Asn Met Asn Tyr Asp Lys 336
Leu Ser Arg Ala Leu Arg Tyr Tyr Tyr Asp Lys Asn Ile Met Thr Lys 352
Val His Gly Lys Arg Tyr Ala Tyr Lys Phe Asp Phe His Gly Ile Ala 368
Gln Ala Leu Gln Pro His Pro Pro Glu Ser Ser Met Tyr Lys Tyr Pro 384
Ser Asp Leu Pro Tyr Met Ser Ser Tyr His Ala His Pro Gln Lys Met 400
Asn Phe Val Ala Pro His Pro Pro Ala Leu Pro Val Thr Ser Ser Ser 416
Phe Phe Ala Ala Pro Asn Pro Tyr Trp Asn Ser Pro Thr Gly Gly Ile 432
Tyr Pro Asn Thr Arg Leu Pro Ala Ala His Met Pro Ser His Leu Gly 448
Thr Tyr Tyr 451

SEQ ID NO: 3

LENGTH: 1528

TYPE: nucleic acid

STRANDEDNESS: single

TOPOLOGY: linear

MOLECULE TYPE: DNA

SEQUENCE DESCRIPTION:

GAATTCCGCG AACGAATAAT TATTATTAGC AATTATTAGC GATCAATAAT CTTGATCACA TT 62

ATG GCA AGC ACT ATT AAG GAA GCA TTA TCA GTG GTG AGT GAA GAC CAG 110

TCC TTG TTT GAG TGT GCC TAC GGA TCG CCC CAC CTT GCA AAG ACA GAA 158

ATG ACA GCC TCC TCT TCC AGT GAA TAT GGG CAA ACA TCA AAG ATG AGC 206

CCG CGC GTT CCC CAG CAG GAC TGG TTA TCA CAG CCC CCG GCC AGA GTT 254

ACC ATT AAG ATG GAG TGT AAC CCA AAC CAG GTT AAT GGG TCA AGG AAT 302

TCA CCT GAT GAC TGC AGC GTG GCA AAA GGA GGG AAA ATG GTT AGC AGT 350

TCA GAC AAT GTT GGG ATG AAC TAT GGA AGC TAC ATG GAA GAG AAG CAT 398

ATT CCG CCT CCA AAT ATG ACA ACC AAT GAA CGA AGA GTT ATT GTG CCA 446

GCA GAT CCT ACG TTA TGG AGC ACA GAC CAT GTA CGG CAG TGG CTG GAG 494

TGG GCA GTG AAG GAG TAT GGT CTT CCA GAC GTG GAC ATC TTG TTG TTC 542

CAG AAC ATT GAT GGG AAA GAG TTG TGT AAA ATG ACC AAA GAT GAC TTC 590

CAG AGA CTC ACG CCG AGC TAT AAC GCA GAT ATC CTC CTG TCA CAC CTA 638

CAC TAC CTC AGA GAG ACT CCT CTT CCA CAT TTG ACT TCA GAT GAT GTT 686

GAT AAG GCC TTA CAA AAC TCT CCA CGG TTA ATG CAT GCT AGA AAC ACA 734

GGA GGA GCC ACT TTT ATT TTT CCA AAT ACA TCA GTT TAC CCA GAA GCA 782

ACG CAA AGA ATA ACA ACA AGG CCA GAT TTA CCT TAT GAG CAA GCG AGG 830

AGA TCA GCG TGG ACG AGT CAC AGC CAT CCC ACT CAG TCA AAA GCT ACC 878

CAA CCA TCA TCT TCA ACA GTG CCC AAA ACA GAA GAC CAG CGT CCT CAG 926

TTA GAT CCT TAT CAG ATT CTT GGA CCG ACC AGC AGC CGT CTT GCA AAT 974

CCA GGG AGT GGG CAG ATA CAG CTA TGG CAG TTC CTA CTG GAG CTT CTG 1022

TCG GAC AGC TCC AAC TCC AAC TGC ATC ACC TGG GAG GGC ACA AAT GGG 1070

GAG TTC AAG ATG ACA GAC CCT GAT GAA GTG GCT CGG CGT TGG GGA GAG 1118

AGG AAA AGC AAA CCT AAC ATG AAC TAT GAC AAA CTC AGC CGT GCA CTT 1166

CGC TAC TAC TAT GAC AAA AAT ATT ATG ACT AAA GTT CAT GGT AAA CGC 1214

TAT GCC TAC AAA TTT GAT TTC CAC GGA ATC GCT CAG GCC CTC CAG CCT 1262

CAC CCT CCA GAA TCA TCC ATG TAC AAA TAC CCA TCA GAC CTC CCC TAC 1310

ATG AGT TCC TAC CAT GCA CAC CCC CAG AAG ATG AAC TTT GTA GCT CCC 1358

CAT CCC CCT GCT TTG CCC GTA ACC TCA TCC AGC TTT TTT GCT GCC CCT 1406

AAT CCA TAC TGG AAT TCA CCA ACT GGA GGC ATC TAC CCC AAT ACC AGG 1454

CTG CCA GCT GCT CAT ATG CCT TCC CAT CTT GGC ACC TAC TAC TAA GTG 1502

GGGAAAGAAA GAAAGCGCCA AGAAAA 1528

SEQ ID NO: 4

LENGTH: 478

TYPE: amino acid

TOPOLOGY: linear

MOLECULE TYPE: peptide

SEQUENCE DESCRIPTION:

Met Ala Ser Thr Ile Lys Glu Ala Leu Ser Val Val Ser Glu Asp Gln 16

Ser Leu Phe Glu Cys Ala Tyr Gly Ser Pro His Leu Ala Lys Thr Glu 32
Met Thr Ala Ser Ser Ser Ser Glu Tyr Gly Gln Thr Ser Lys Met Ser 48
Pro Arg Val Pro Gln Gln Asp Trp Leu Ser Gln Pro Pro Ala Arg Val 64
Thr Ile Lys Met Glu Cys Asn Pro Asn Gln Val Asn Gly Ser Arg Asn 80
Ser Pro Asp Asp Cys Ser Val Ala Lys Gly Gly Lys Met Val Ser Ser 96
Ser Asp Asn Val Gly Met Asn Tyr Gly Ser Tyr Met Glu Glu Lys His 112
Ile Pro Pro Pro Asn Met Thr Thr Asn Glu Arg Arg Val Ile Val Pro 128
Ala Asp Pro Thr Leu Trp Ser Thr Asp His Val Arg Gln Trp Leu Glu 144
Trp Ala Val Lys Glu Tyr Gly Leu Pro Asp Val Asp Ile Leu Leu Phe 160
Gln Asn Ile Asp Gly Lys Glu Leu Cys Lys Met Thr Lys Asp Asp Phe 176
Gln Arg Leu Thr Pro Ser Tyr Asn Ala Asp Ile Leu Leu Ser His Leu 192
His Tyr Leu Arg Glu Thr Pro Leu Pro His Leu Thr Ser Asp Asp Val 208
Asp Lys Ala Leu Gln Asn Ser Pro Arg Leu Met His Ala Arg Asn Thr 224
Gly Gly Ala Thr Phe Ile Phe Pro Asn Thr Ser Val Tyr Pro Glu Ala 240
Thr Gln Arg Ile Thr Thr Arg Pro Asp Leu Pro Tyr Glu Gln Ala Arg 256
Arg Ser Ala Trp Thr Ser His Ser His Pro Thr Gln Ser Lys Ala Thr 272
Gln Pro Ser Ser Ser Thr Val Pro Lys Thr Glu Asp Gln Arg Pro Gln 288
Leu Asp Pro Tyr Gln Ile Leu Gly Pro Thr Ser Ser Arg Leu Ala Asn 304
Pro Gly Ser Gly Gln Ile Gln Leu Trp Gln Phe Leu Leu Glu Leu Leu 320
Ser Asp Ser Ser Asn Ser Asn Cys Ile Thr Trp Glu Gly Thr Asn Gly 336
Glu Phe Lys Met Thr Asp Pro Asp Glu Val Ala Arg Arg Trp Gly Glu 352
Arg Lys Ser Lys Pro Asn Met Asn Tyr Asp Lys Leu Ser Arg Ala Leu 368
Arg Tyr Tyr Tyr Asp Lys Asn Ile Met Thr Lys Val His Pro Pro Glu 384
Ser Ser Met Tyr Lys Tyr Pro Ser Asp Leu Pro Tyr Met Ser Ser Tyr 400
His Gly Lys Arg Tyr Ala Tyr Lys Phe Asp Phe His Gly Ile Ala Gln 416
Ala Leu Gln Pro His Ala His Pro Gln Lys Met Asn Phe Val Ala Pro 432

His Pro Pro Ala Leu Pro Val Thr Ser Ser Ser Phe Phe Ala Ala Pro 448

Asn Pro Tyr Trp Asn Ser Pro Thr Gly Gly Ile Tyr Pro Asn Thr Arg 464

Leu Pro Ala Ala His Met Pro Ser His Leu Gly Thr Tyr Tyr 478

SEQ ID NO: 5

LENGTH: 23

TYPE: nucleic acid

STRANDEDNESS: single

TOPOLOGY: linear

MOLECULE TYPE: DNA

SEQUENCE DESCRIPTION:

ATCTTGATCA CATTATGGCA AGC 23

SEQ ID NO: 6

LENGTH: 25

TYPE: nucleic acid

STRANDEDNESS: single

TOPOLOGY: linear

MOLECULE TYPE: DNA

SEQUENCE DESCRIPTION:

CACATTATGG CAAGCACTAT TAAGG 25

SEQ ID NO: 7

LENGTH: 25

TYPE: nucleic acid

STANDEDNESS: single

TOPOLOGY: linear

MOLECULE TYPE: DNA

SEQUENCE DESCRIPTION:

CACTTAGTAG TAGGTGCCAA GATGG 25